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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,710	08/07/2006	Brad A. Lovett	60,158-294PUS1	4638
26/096 7590 03/25/2011 CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD SUITE 350 BIRMINGHAM, MI 48009				
EXAMINER				
JACOBSON, MICHELE LYNN				
ART UNIT		PAPER NUMBER		
1782				
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03/25/2011		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/588,710

**Applicant(s)**

LOVETT ET AL.

**Examiner**

MICHELE JACOBSON

**Art Unit**

1782

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4-6, 10-19, 21, 23-25 and 31-38 is/are pending in the application.
- 4a) Of the above claim(s) 14-19, 21, 23-25 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 10-13, 31-33 and 35-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-6, 10-12, 31-33 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jadamus et al. U.S. Patent No. 6,428,866 (hereafter referred to as Jadamus) and "Encyclopedia of Polymer Science and Technology", Pallmer, R.J. ed. John Wiley & Sons, New York. 2001. Vol. 3, pgs. 618-642. (hereafter referred to as Pallmer)

3. Jadamus teaches a multilayer pipe for fuel transport applications comprising an outer layer of a thermoplastic composition and an inner layer of an electrically conductive thermoplastic composition wherein the electrically conductive composition contains graphite fibrils. (Col. 1, line 54-Col. 2, line 2) The inner and outer layers are recited to comprise polyamides such as copolyamides comprising isophthalic and terephthalic acid residues and mixed aliphatic/aromatic polycondensate polyamides such as those described in U.S. Patent No. 3,393,210 (Speck). (Col. 2, lines 20-26, 41-44, 50-51) The polyamides may be impact modified. (Col. 3, line 11) The ratio of the

thickness of the inner layer to the thickness of the outer layer is recited to be between 1:5 to 1:100 (inner layer = 17% - 1% of the total thickness) The graphite fibrils render the surface resistance of the inner layer to preferably be less than  $10^5 \Omega/\text{sq.}$  (Col. 5, lines 29-31)

4. An optional barrier layer between the inner and outer layers comprising a thermoplastic molding composition such as polyester, polyvinylidene fluoride, ETFE, polyolefin or EVOH may also be present. (Col. 5, lines 1-6) Polyamide is disclosed as an interior layer in Table 1. (Table 1) Fluoropolymers such as ethylene-chlorotrifluoroethylene (ECTFE) and polyesters such as polybutylene naphthalate are recited to be useful inner layers for the pipe disclosed. (Col. 4, lines 26-36)

5. Jadamus is silent regarding the percentage of amide groups attached to aromatic rings, corrugation of the fuel tube and the presence of a heat stabilizer.

6. Pallmer teaches that nylons (polyamides) containing aromatic monomers tend to have increased stiffness and strength by virtue of the greater rigidity of the chains. (Pg. 625)

7. Regarding claim 1: Jadamus clearly recites a vehicle tubing comprising two polyamide layers in which the inner polyamide layer is electrically conductive wherein polyamide layers that are useful for the invention include copolyamides comprising aromatic groups. Pallmer establishes that the level of ordinary skill in the art at the time the invention was made was such that a practitioner of polymer chemistry would have recognized that the increasing the percentage of aromatic monomers present in a polyamide was a variable that produced the result of increasing the stiffness and

strength of the polyamide. Jadamus discloses that aromatic coacids such as terephthalic and isophthalic acid are useful in the production of copolyamides for the polyamide layers disclosed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the result effective variable of the percentage of aromatic monomer present in the copolyamides useful for the invention of Jadamus in order to obtain a pipe with desirable properties of stiffness and strength. Terephthalic acid and isophthalic acid copolymerize to form a copolyamide in which the amide groups are directly attached to the aromatic ring comprising these molecules. Therefore, the optimization of the amount of terephthalic or isophthalic acid present directly correlates to the percentage of amide groups attached to aromatic rings. This obvious optimization of a result effective variable would have produced the invention claimed in claim 1.

8. Regarding claims 4, 6, 10-12 and 33: Jadamus discloses an impact modifier with the inner layer having a thickness between 50%-10% of the total thickness and being electrically conductive by means of carbon fibers with a surface resistivity between  $10^2$ - $10^7$   $\Omega$ /sq claimed in claims 1, 4, 6, 10-12 and 33.

9. Regarding claims 5, 31 and 35-37: Jadamus disclose an embodiment with an additional barrier layer comprising the same materials as claimed in claims 5 and 31. Table 1 discloses the use of polyamide as an interior layer as claimed in claim 36. ECTFE and polybutylene naphthalate are both disclosed to be useful materials for the inner layer of the tubing and therefore substitution of these materials for the fluoropolymers and polyester disclosed for the barrier layer would have been obvious to

one of ordinary skill in the art at the time the invention was made because these materials were recognized to perform the equivalent function of providing barrier properties. The selection of a known material based on its suitability for its intended use supports a *prima facie* obviousness determination. ("Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jig-saw puzzle." *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious)) (MPEP 2144.07) This obvious selection of a known material based on its suitability for its intended use would have produced the same inventions claimed in claims 35 and 37.

10. Regarding claim 32: The examiner takes official notice that it is universally known in the fuel hose art to provide heat stabilizers to polymers that will be employed in applications where they are exposed to high heat. Since fuel hoses are used in engines, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have added a heat stabilizer to the aromatic polyamide recited by Jadamus in order to improve the stability of the hose under the high temperature conditions it would be employed in. This obvious improvement to the invention of Jadamus would have produced the invention as claimed in claim 32.

11. It is noted by the examiner that the official notice taken by the examiner that it is universally known in the fuel hose art to provide heat stabilizers to polymers that will be employed in applications where they are exposed to high heat is taken to be admitted

prior art because applicant failed to traverse the examiner's assertion of official notice in the response to the non-final rejection filed 10/20/09, in the arguments after the final rejection filed 4/19/10 or in the appeal brief filed 8/9/10. (See MPEP 2144.03C)

12. Claims 13 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jadamus et al. U.S. Patent No. 6,428,866 (hereafter referred to as Jadamus) and "Encyclopedia of Polymer Science and Technology", Pallmer, R.J. ed. John Wiley & Sons, New York. 2001. Vol. 3, pgs. 618-642. (hereafter referred to as Pallmer) as applied to claim 1 above in further view of Hegler U.S. Patent No. 3,538,209 (hereafter referred to as Hegler).

13. Jadamus and Pallmer teach what has been recited above but is silent regarding corrugating the outer layer of the hose while the inner layer remains non-corrugated.

14. Hegler teaches a double walled plastic tube comprising a corrugated outer layer and a non-corrugated inner layer. (Col. 2, lines 17-25) Corrugation of the outside provides the tubing with flexibility while the smooth surface of the inside is beneficial for pipes through which liquid is to be pumped. (Col. 1, lines 55-62)

15. Regarding claim 13: The examiner takes official notice that it is universally known in the fuel hose art to provide corrugation to the exterior of hoses in order to increase their flexibility. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have corrugated the exterior surface of the

hose disclosed by Jadamus to increase the flexibility of the hose while leaving the interior layer uncorrugated as taught by Hegler since the pipes disclosed by Jadamus are intended to have liquid pumped through them. The obvious utilization of this configuration according to the teachings and benefits known in the prior art would have produced the invention as claimed in claim 13.

16. It is noted by the examiner that the official notice taken by the examiner that it is universally known in the fuel hose art to provide corrugation to the exterior of hoses in order to increase their flexibility is taken to be admitted prior art because applicant failed to traverse the examiner's assertion of official notice in the response to the non-final rejection filed 10/20/09, in the arguments after the final rejection filed 4/19/10 or in the appeal brief filed 8/9/10. (See MPEP 2144.03C)

17. Regarding claim 38: It would have been obvious to one having ordinary skill in the art at the time the invention was made to have left areas of the tubing that were not required to be flexible uncorrugated. This would have produced a tubing with alternating corrugated and non-corrugated sections as claimed in claim 38.

### ***Response to Arguments***

18. Applicant's arguments filed 1/26/10 have been fully considered but they are not persuasive.



19. Applicant asserts on page 2 of the remarks that "No indication is given in Pallmer as to what effect varying the levels of amide groups attached to aromatic groups would have or even that it is known to vary such a parameter". There is no requirement that Pallmer recognize these features since the modification of Jadamus with the teachings of Pallmer result in the same invention as claimed by applicant.

20. Pallmer teaches that nylons (polyamides) containing aromatic monomers tend to have increased stiffness and strength by virtue of the greater rigidity of the chains. One having the most basic proficiency in the polymer arts would have recognized that the clear teaching of aromatic monomers being present in the polyamide chain clearly indicates that they are attached to amide groups. Polyamides are condensation polymers which means that amide groups alternate with monomers produced from dicarboxylic acids. As such, in a polyamide comprising terephthalic acid, **every** aromatic monomer would be attached to an amide group. Obviously, increasing the amount of aromatic monomer would result in an increase in amide groups attached to aromatic monomers. As clearly indicated by Pallmer, aromatic monomers increase the stiffness of polyamides. Therefore, contrary to applicant's assertion, the amount of aromatic monomer present in a polyamide is clearly a result effective variable, the optimization of which would have yielded the same invention claimed.

21. Applicant asserts on page 2 that the "Examiner alleges that it is obvious to vary the quantity of aromatic polyamide present in the outer layer of Jadamus and thereby optimize barrier properties and strength". The examiner never relied upon varying the

quantity of aromatic polyamide present in the outer layer of Jadamus and therefore applicant's arguments attempting to traverse this assertion are not germane.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELE JACOBSON whose telephone number is (571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-7 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michele L. Jacobson  
Examiner /M. J./  
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